

**DETAILED ACTION**

1. The papers submitted on 11 January 2010, amending claim 1, are acknowledged.

***Continued Examination Under 37 CFR 1.114***

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11 January 2010 has been entered.

***Claim Objections***

3. Claims 2-4 are objected to because of the following informalities:
4. In claim 2-4, the word "Claim" in the first lines should not be capitalized; it should be written as "claim".
5. In claim 4, the unit of temperature, as in "60°C", in lines 3 and 5, should be written with a space after the degree sign, "°" and a period after "C", as in "60° C."
6. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claim 1-6, 8 and 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
9. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: extruding the composition.
10. Claims 2-6, 8 and 9 are rejected for their dependence on claim 1.

***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

13. Claims 1, 3, 5, 6, 8 and 9 rejected under 35 U.S.C. 103(a) as being unpatentable over Lakshmanan (US 3,987,002) in view of Song et al. (US 5,562,936).

14. Regarding claim 1 and 5, Lakshmanan discloses a method of forming an adhesive composition (see **abstract and col. 2 ll. 29-30**) including; rubber, a hydrocarbon resin, and a solvent (see **col. 1 ll. 35, 65-67 and col. 2 ll. 12-13**) which are mixed at room temperature (see **col. 2 ll. 33-35**) (i.e. the temperature is such that the temperature of the composition is less than the boiling point of the solvent) and further the composition necessarily is an adhesive formulation in which the resin and rubber are dissolved in the solvent such that the adhesive formulation has tackifying properties.

15. Lakshmanan does not appear to explicitly disclose mixing in dual extruder or that some of the solvent is added downstream of the extruder's initial section.

16. However, Song et al. discloses a method of mixing/extruding a rubber composition (see **title/abstract**) in a counter rotating dual screw extruder (see **col. 5 ll. 20-23**) wherein lower viscosity components are added downstream from higher viscosity components (see **col. 3 ll. 11-27**), specifically the rubber is added upstream of where the solvent and additional resins are added to the extruder.

17. At the time of invention, it would have been *prima facie* obvious to one of ordinary skill in the art to modify the method of Lakshmanan to include the extruder of Song and to introduce some of the solvent and resin downstream from the rubber inlet, because Lakshmanan teaches that any method and order of mixing the ingredients is acceptable (see **Lakshmanan col. 2 ll. 30-35**) and Song teaches that adding the lower viscosity components downstream from the higher viscosity components in order to allow for pre-treatment and/or pre-blending (i.e. highly dispersive mixing) of the higher viscosity components before the addition of the lower viscosity components in a continuous manner and without the necessity of addition pre-treatment and/or

pre-blending equipment, and thus produce a more homogeneous composition (see Song col. 2 ll. 27-36, col. 6 ll. 27-35 and col. 7 l. 54 to col. 8 l. 13).

18. Regarding claim 3, Song discloses adding the low viscosity components in multiple points (see col. 7 ll. 37-39).

19. Regarding claim 6, Lakshmanan discloses styrene-butadiene copolymer (rubber) (see **abstract**) which is a synthetic rubber.

20. Regarding claim 8, Lakshmanan discloses that the solvent is hexane (see col. 2 ll. 12-28).

21. Regarding claim 9, Song discloses that the extruder is a co-rotating dual-screw extruder (see col. 8 ll. 27-42).

22. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lakshmanan (US 3,987,002) in view of Song et al. (US 5,562,936) as applied to claim 1 above, further in view of Capelle et al. (US 5,262,111).

23. Modified Lakshmanan does not appear to expressly disclose the specific location of the first solvent inlet.

24. However, Capelle discloses a method of processing rubber composition in a twin screw extruder (see **title/abstract**) wherein plasticizing oils, analogous to solvents, are added downstream of the rubber inlet, specifically at 22 and 35 times the diameter (see col. 3 ll. 40-41 and 45-46).

25. At the time of invention, it would have been *prima facie* obvious to one of ordinary skill in the art to modify the method of modified Lakshmanan to include the locations of Capelle, in order to allow for adequate mixing prior to the introduction of the plasticizer, furthermore it

would have been *prima facie* obvious to optimize the location of the inlets along the length of the extruder based on the desired residence time required prior to the introduction of solvent without undue experimentation or unexpected results.

***Allowable Subject Matter***

26. Claim 4 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.
27. The following is a statement of reasons for the indication of allowable subject matter:
28. The prior art taken either singularly or in combination fails to anticipate or fairly suggest the limitations of the independent claims, in such a manner that a rejection under 35 U.S.C. §102 or §103 would be proper. The prior art fails to disclose controlling the temperature in the upstream portion (before the solvent inlet) being greater than that prevailing in the downstream portion (after the solvent inlet) in the range required by the instant claim, the closest prior art (cited above) merely teaches an increasing temperature through the length of the extruder (**see Song col. 9 ll. 16-23**) or at a constant temperature during the additional of solvent/plasticizer (**see Capelle col. 1 ll. 54-58 and Lakshmanan col. 2 l. 33-35**).

***Response to Arguments***

29. Applicant's arguments with respect to claims 1-6, 8 and 9 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

30. Any inquiry concerning this communication or earlier communications from the examiner should be directed to BENJAMIN SCHIFFMAN whose telephone number is (571) 270-7626. The examiner can normally be reached on Monday through Thursday from 9AM until 4PM.

31. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, CHRISTINA JOHNSON can be reached on 571-272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

32. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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